## Form INV-2 EMISSION POINT DESCRIPTION

Duplicate this form for EACH Emission POINT

| | | | | | |
|---|---|---|---|---|---|
| 1) Company/Facility Name | ACME CORPORATION | 1a) Form INV-2 Page | 1 | of | 3 |
| 2) Emission Point Number | EP1 | | | | |
| 3) Emission Point Description | WELDING VENT | | | | |
| 4) Is this stack/vent used as an Emergency Bypass Stack? | No ☒ | Yes ☐ | | | |
| If YES, for which stack(s)? List Emission Point Nos.: | | | | | |

**EMISSION POINT INFORMATION**

**5) Emission Point Type**

| | | |
|---|---|---|
| Stack/Vent | ☒ | |
| Fugitive (specify) | ☐ | |
| Other (specify) | ☐ | |

**6) Stack Shape and Dimensions: (interior dimensions at exit point)**

| | | | | | | |
|---|---|---|---|---|---|---|
| Circular Diameter: | ☐ | | inches | | | |
| Rectangular Dimensions: | ☒ | 8 | inches | x | 10 | inches |
| Other Dimensions | ☐ | | inches | | | |

| | | |
|---|---|---|
| 7) Stack Height Above Ground | 12 | feet |

**8) Does the Emission Point have a rain cap (or anything else) which obstructs the flow of gases leaving the Emission Point, or a horizontal discharge?**

| | | | | |
|---|---|---|---|---|
| No | ☐ | YES (specify): | ☒ | HORIZONTAL DISCHARGE |

**9) COMPOSTION OF EXHAUST STREAM**

| Exhaust Stream Characteristics | Emission Point Composition of Exhaust Stream | Units of Measure |
|---|---|---|
| a) Flow Rate | 900 | ☒ ACFM ☐ SCFM |
| b) Temperature | Ambient | Degree Fahrenheit |

**10) BYPASS STACKS**

| | | | |
|---|---|---|---|
| Bypass Stack – Emission Point No. | | Bypass Stack Description | |
| Bypass Stack – Emission Point No. | | Bypass Stack Description | |

**11) LIST OF EMISSION UNITS VENTING THROUGH THIS EMISSION POINT**

| Emission Unit No. | Emission Unit No | Emission Unit No. | Emission Unit No. |
|---|---|---|---|
| EU1 | | | |
| | | | |
| | | | |
| | | | |

Duplicate this form as needed

TYPE ALL INFORMATION

(DNR Form 542-4004. December 24, 2007)

**Form INV-5 CALCULATIONS**

Duplicate this form for each Form it will accompany in the Questionnaire

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1) Company/Facility Name | ACME CORPORATION | | | 1a) Form INV-5 Page | 1 | of | 5 |
| 2) Emission Point No. | EP1 | 3) | Emission Unit No. | EU1 | | | |
| 4) Calculations are provided in support of information reported on Form INV - | 3 ☒ | 4 ☒ | for the Emission Point and Emission Unit listed above. | | | | |
| 5) Emissions Calculations | | | | | | | |

Process: Gas Metal Arc Welding, E308 Electrode
SCC No.: 30905212

Maximum rate: 30 lb of electrode per hour
Actual Year Throughput – Yearly Total: 40,000 pounds of electrode

| Pollutant | Emission Factors from AP-42, Chapter 12.19 |
|---|---|
| $PM_{2.5}$ | 5.4 lb/1,000 lbs of electrode consumed ($PM_{2.5}$ is assumed to be equal to $PM_{10}$ for welding) |
| $PM_{10}$ | 5.4 lb/1,000 lbs of electrode consumed |
| Chromium | 0.524 lb/1,000 lbs of electrode consumed |
| Manganese | 0.346 lb/1,000 lbs of electrode consumed |
| Nickel | 0.184 lb/1,000 lbs of electrode consumed |

## ***Calculations***

**POTENTIAL EMISSIONS:**
Potential $PM_{2.5}$ tons/yr
Potential $PM_{10}$ tons/yr

(.030 1,000 lb/hr) *x* (5.4 lb/1,000 lbs) *x* (8,760 hrs/year) *x* (1 ton/2,000 lbs) = 0.71 tons per year

The same formula is used to calculate the other pollutants with their corresponding emission factors.

Potential Chromium tons/yr = 0.07
Potential Manganese tons/yr = 0.05
Potential Nickel tons/yr = 0.02

**ACTUAL EMISSIONS:**
Actual $PM_{2.5}$ tons
Actual $PM_{10}$ tons

(40 1,000 lbs) *x* (5.4 lb/1,000lbs) *x* (1 ton/2,000 lbs) = 0.11 tons

The same formula is used to calculate the other pollutants with their corresponding emission factors.

Actual Chromium tons = 0.01
Actual Manganese tons = 0.01
Actual Nickel tons = 0.00

## Form INV-3 EMISSION UNIT DESCRIPTION – POTENTIAL EMISSIONS

Duplicate this form for EACH Emission UNIT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1) | Company/Facility Name | ACME CORPORATION | | | 1a) Form INV-3 Page | 1 | of | 3 | |
| 2) | Emission Point Number | EP1 | | | | | | | |
| | EMISSION UNIT (PROCESS) IDENTIFICATION & DESCRIPTION | | | | | | | | |
| 3) | Emission Unit Number | EU1 | | | | | | | |
| 4) | SCC Number | 30905212 | | | | | | | |
| 5) | Description of Process | GAS METAL ARC WELDING | | | | | | | |
| 6) | Date of Construction | 2/15/1985 | 7) | Date of Installation | 2/15/1985 | 8) | Date of Modification | | |
| 9) | Raw Material – OR Fuels Used List worst case for EACH pollutant | E308 WELDING WIRE | | | | | | | |
| 10) | Federally Enforceable Limit | | | | | | | | |
| 11) | Permit or Rule Establishing Limit | | | | | | | | |
| 12) | Maximum Hourly Design Rate | 0.030 | 1,000 POUNDS | | Per Hour | | | | |
| 13) | AIR POLLUTION CONTROL EQUIPMENT (CE) | | | | | | | | |
| | Control Equipment Number | | | | | | | | |
| | Control Equipment Description | | | | | | | | |
| | Control Equipment Number | | | | | | | | |
| | Control Equipment Description | | | | | | | | |

POTENTIAL EMISSIONS

| 14 Air Pollutant | 15 Emission Factor | 16 Emission Factor Units | 17 Source of Emission Factor | 18 Ash or Sulfur % | 19 Potential Hourly Uncontrolled Emissions (Lbs/Hr) | 20 Combined Control Efficiency | 21 Transfer Efficiency | 22 Potential Hourly Controlled Emissions (Lbs/Hr) | 23 Potential Annual Emissions (Tons/Yr) |
|---|---|---|---|---|---|---|---|---|---|
| PM-2.5 | 5.4 | LB/1,000 LB | AP-42 | | 0.16 | | | | 0.71 |
| PM-10 | 5.4 | LB/1,000 LB | AP-42 | | 0.16 | | | | 0.71 |
| $SO_2$ | | | | | | | | | |
| NOx | | | | | | | | | |
| VOC | | | | | | | | | |
| CO | | | | | | | | | |
| Lead | | | | | | | | | |
| Ammonia | | | | | | | | | |
| POTENTIAL EMISSIONS – Individual HAPs and additional regulated air pollutants – list each individual pollutant name in Column 14 | | | | | | | | | |
| Cr | 0.524 | LB/1,000 LB | AP-42 | | 0.02 | | | | 0.07 |
| Mn | 0.346 | LB/1,000 LB | AP-42 | | 0.01 | | | | 0.05 |
| Ni | 0.184 | LB/1,000 LB | AP-42 | | 0.01 | | | | 0.02 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other – Specify

Duplicate this form as needed

TYPE ALL INFORMATION

(DNR Form 542-4001. December 24, 2007)

## Form INV-4 EMISSION UNIT DESCRIPTION – ACTUAL EMISSIONS

Duplicate this form for EACH Emission UNIT

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1) | Company/Facility Name | ACME CORPORATION | | 1a) Form INV-4 Page | 1 | of | 3 |
| 2) | Emission Year | 2008 | 3) Emission Point Number | EP1 | | | |

**EMISSION UNIT – ACTUAL OPERATIONS AND EMISSIONS**

| | | | | |
|---|---|---|---|---|
| 4) | Emission Unit Number | EU1 | 5) SCC Number | 30905212 |
| 6) | Description of Process | GAS METAL ARC WELDING | | |

**ACTUAL THROUGHPUT**

| | | | | | |
|---|---|---|---|---|---|
| 7) | Raw Material | ELECTRODE E308 | | | |
| 8) | Actual Throughput – Yearly Total | 40 | 9) | Units Raw Material | 1,000 POUNDS |

**Actual Operating Rate/Schedule**

| | 10) Percent of Total Operating Time | 11) Hours/Day | 12) Days/Week | 13) Weeks/Quarter |
|---|---|---|---|---|
| JAN – MAR | 25 | 8 | 6 | 13 |
| APR – JUN | 25 | 8 | 6 | 13 |
| JUL – SEP | 25 | 8 | 6 | 13 |
| OCT - DEC | 25 | 8 | 6 | 13 |

**14) AIR POLLUTION CONTROL EQUIPMENT (CE)**

| | |
|---|---|
| Control Equipment Number | |
| Control Equipment Description | |
| Control Equipment Number | |
| Control Equipment Description | |

**ACTUAL EMISSIONS**

| 15 Air Pollutant | 16 Emission Factor | 17 Emission Factor Units | 18 Source of Emission Factor | 19 Ash or Sulfur % | 20 Combined Control Efficiency | 21 Transfer Efficiency | 22 Actual Emissions (Tons/Yr) |
|---|---|---|---|---|---|---|---|
| PM-2.5 | 5.4 | LB/1,000 LB | AP-42 | | | | 0.11 |
| PM-10 | 5.4 | LB/1,000 LB | AP-42 | | | | 0.11 |
| $SO_2$ | | | | | | | |
| NOX | | | | | | | |
| VOC | | | | | | | |
| CO | | | | | | | |
| Lead | | | | | | | |
| Ammonia | | | | | | | |
| **ACTUAL EMISSIONS – Individual HAPs and additional regulated air pollutants – list each individual pollutant name in Column 15** | | | | | | | |
| Cr | 0.524 | LB/1,000 LB | AP-42 | | | | 0.01 |
| Mn | 0.346 | LB/1,000 LB | AP-42 | | | | 0.01 |
| Ni | 0.184 | LB/1,000 LB | AP-42 | | | | 0.00 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other – Specify

Duplicate this form as needed TYPE ALL INFORMATION (DNR Form 542-4002 December 24, 2007)